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ABSTRACT OF THE DISCLOSURE

Particularly to accommodate high DC supply voltages, a current-fed parallel-resonant self-oscillating electronic ballast includes two synchronously operating full-bridge inverter circuits connected in series across the DC supply. That way, the voltage rating of each individual transistor need be only half of what otherwise would be required. To prevent high-magnitude voltage transients from occurring across the transistors, the main tank capacitor is split into two series-connected capacitors, with one of these capacitors being connected in parallel with each full-bridge inverter circuit. The output from each bridge inverter circuit is applied to its own primary winding on the output transformer, which output transformer is gapped and thereby also serves as the tank inductor. Each bridge transistor is controlled by a drive winding on the output transformer.

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REVISED ABSTRACT OF THE DISCLOSURE

A current-fed parallel-resonant self-oscillating electronic ballast includes four special switching devices, each serving the function of a single switching transistor in a full-bridge inverter. Each special switching device includes two series-connected field effect transistors synchronously gated via positive feedback of a sinusoidal output voltage. The reason for using two series-connected field-effect transistors in lieu of a single field-effect transistor of higher voltage rating relates to the fact that, for the DC supply voltages associated with certain electronic ballast circuits powered from commonly encountered power line voltages, field-effect transistors of lower voltage ratings (e.g., 400 Volt) are substantially lower in cost per-unit Volt-Ampere rating as compared with field-effect transistors of higher voltage ratings (e.g., 800 Volt). Thus, although such higher-voltage transistors are readily available, the net overall ballast cost will nevertheless be significantly reduced by using the special switching devices.

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